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CIRCULAR NO.

THE PUBLIC SERVICE COMMISSION
OF THE
COMMONWEALTH OF PENNSYLVANIA

Rules and Regulations
RELATING TO
PUBLIC UTILITIES

ADOPTED APRIL 9, 1914

PREPARED BY

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Nothing contained in these rules shall be construed as relieving any Utility from the performance of any of its legal duties to the public.

By Order of

THE PUBLIC SERVICE COMMISSION
the
COMMONWEALTH OF PENNSYLVANIA

THE PUBLIC SERVICE COMMISSION OF THE COMMONWEALTH OF PENNSYLVANIA

PART I.

GENERAL.

Definitions:

The term "utility" as used in these rules includes all public service companies, corporations and persons, as defined in The Public Service Company Law, engaged in the production, sale or distribution of electricity within the jurisdiction of the Commission.

I. Statutory:

"It shall be the duty of every public service company to furnish and maintain such service, including facilities, as shall in all respects be just, reasonably adequate, and practically sufficient for the accommodation and safety of its patrons, employees, and the public, and in conformity with such reasonable regulations or orders as may be made by the Commission."

II. Voltage Variation:

Each utility supplying electrical energy from a constant voltage system, shall adopt standard service voltages for such system, the suitability and adequacy of which voltages may be determined at any time by the Commission, and every reasonable effort shall be made to maintain such voltage practically constant at all times during which service is supplied. For service rendered under a lighting contract, or primarily for lighting purposes, the variations of voltage as measured at the service terminals shall not exceed five (5%) per cent., plus or minus, of the standard service voltage for that locality, for a longer period than one minute at each instance, at any time during which service is supplied. For service rendered under a power contract, or primarily for power purposes, voltage variations as measured at the service terminals shall not exceed ten (10%) per cent., plus or minus, of the standard service voltage for that locality for a longer period than one minute at each instance: Provided, First, That this limit of ten (10%) per cent., shall not apply to power supplied from direct current trolley wires;

and, Second, That a utility may, if satisfactory to and approved by the Commission, furnish service under conditions of greater voltage variations, (a) upon filing with the Commission a copy of all existing contracts containing a provision for service with such greater variation of voltage, or, (b) upon filing with the Commission a copy of all existing contracts which do not contain a provision for such greater variations in voltage, together with a statement in each case of the variations in voltage existing in the service rendered under each said contract, and (c) upon filing with the Commission a copy of all contracts made hereafter which contemplate service under conditions of greater voltage variations, and which shall in each case henceforth contain a clause stating the probable variations in voltage that will occur in the service rendered under said contract: And provided, further, that such greater variations in the voltage shall not result in unreasonable discrimination in favor of or against any consumer. Variations of voltage in excess of those specified above, caused by the operations of the consumer in violation of his contract or the rules of the utility, or from causes beyond the control of the utility, shall not be considered a violation of this rule.

III. Record of Station Voltage:

Each utility shall keep in continuous operation at least one graphic recording voltmeter in each generating station. Each utility shall also place and connect additional graphic recording voltmeters at such places and for such periods of time as the Commission may from time to time require. All records from such meters shall be kept on file as specified in Rule X.

IV. Standard Frequency:

Each utility supplying alternating current shall adopt a standard frequency, the suitability of which may be determined by the Commission, and shall maintain this frequency within five (5%) per cent. plus or minus, of standard, at all times during which service is supplied: Provided, That momentary variations of frequency of more than five (5%) per cent. which are clearly due to no lack of proper equipment or reasonable care on the part of the utility, shall not be considered a violation of this rule.

V. Records of Load and Interruptions:

Each utility shall keep a record of the time of starting and disconnecting all street lighting circuits; of the readings of such instruments at each generating station, and at such intervals as are necessary to determine the characteristics of the load; and of all interruptions to service affecting the busbars, feeders, or distributing mains, which record shall show the time, duration, extent, and the

cause when known, of the interruption. An interruption is here defined for the purpose of record only, as the interval of time during which the voltage falls below fifty (50%) per cent. of standard voltage. All such records shall be kept as specified in Rule X, for at least two years.

VI. Complaint Records:

Each utility shall keep a record of all written complaints received from its consumers in regard to service, which record shall show the name and address of the complainant, the date and nature of the complaint, the action taken, and the date of final disposition of the matter. These records shall be kept as specified in Rule X.

VII. Maintenance and Inspection:

Each utility shall maintain its equipment and facilities, and shall make periodic inspection of the same, all in accordance with good practice, and in a manner satisfactory to the Commission. Each utility shall also keep a complete record of all such inspections, as specified in Rule X, and shall file with the Commission a statement of the condition of its equipment and facilities, and such copies of its reports of inspections, when and in such form as the Commission may require.

VIII. Defective Apparatus:

Whenever any equipment or facilities, the failure of which would involve life hazard, are removed from service for any reason, they must be thoroughly inspected and tested before being again placed in service, and no equipment or facilities shall be placed in service or continued in service, which have for any reason become dangerous, or liable to cause injury to persons or damage to property.

IX. Accidents:

Each utility shall keep a record of and shall furnish to the Investigator of Accidents for the Commission, in accordance with the rules of the Commission, reports of any and all accidents happenings in or about or in connection with the operation of its property, facilities or service, wherein any person shall have been killed or injured, or property damaged or destroyed, with a full statement as far as possible of the causes of such accidents, and the precautions, if any, taken as prevention against future accidents of similar character.

X. Records and Reports:

All records required by these Rules shall be kept within the State, at an office or offices of the utility located in the territory served

by it, and shall be open for examination by the Commission or its representative. Each utility shall notify the Commission of the office or offices at which the various classes of records are kept, and shall file with the Commission such reports as the Commission may from time to time require.

PART II.

METERS.

XI. Allowable Error:

No watt-hour meter shall be placed in service nor allowed to remain in service, which registers at no load when the applied voltage is less than one hundred and ten (110%) per cent. of standard service voltage, nor which is in any way mechanically defective, nor which has incorrect constants, nor an error in measurements in excess of four (4%) per cent.

XII. Method of Determining the Error:

The error of a service watt-hour meter shall be determined as follows: The error at light load—here defined as not less than five (5%) per cent. nor more than ten (10%) per cent. of rated capacity for induction type meters, and not less than ten (10%) per cent. nor more than fifteen (15%) per cent. of rated capacity for commutator type and mercury type meters—shall be determined by taking the average of at least two errors, determined from as many separate readings of the same light load, which errors must agree with each other within one-half ($\frac{1}{2}$ %) per cent. of registration accuracy. In the same manner the error at heavy load—here defined as not less than seventy-five (75%) per cent. nor more than one hundred (100%) per cent. of rated capacity—shall be determined.

The error of the meter shall then be determined by taking the average of the error at light load and the error at heavy load, proper account being taken of the sign of these two errors: Provided, That where, the consumer's connected load does not equal seventy-five (75%) per cent. of the rated capacity of the meter, the full connected load may be considered as heavy load for purposes of test.

In all cases where it is not practicable to determine the error by the method outlined above, the utility shall have the option of installing an approved check meter or meters, and determining the error of the service meter by comparing the watt-hours registered by the check meter with the watt-hour registered by the service meter in the same time. When this option is exercised, the check meter shall be left in circuit until the hand on the first dial of the service meter shall have made at least two complete revolutions. If a utility desires to use "per cent. registration" or "accuracy," in place of "per cent. error," the per cent. registration shall be determined in the same manner as provided above for determining per cent. error.

XIII. Meter Record.

Each utility shall maintain a record of all its service watt-hour meters, which record shall show the name of the manufacturer, the type, the rating, the date of purchase when purchased after July 1st, 1914, the date and location of all installations in service and the removals therefrom, the date of all tests and the reasons therefor, and the error "as found" and "as left." This record shall be kept as specified in Rule X, and shall be complete and up to date within three years subsequent to July 1st, 1914.

XIV. Test Previous to Installation:

Each watt-hour meter installed after July 1st, 1914, shall have been tested for accuracy by the utility within ninety (90) days previous to its installation, or shall be so tested within sixty (60) days thereafter. It shall also be inspected by the utility for proper connection, mechanical condition, and suitability of location within sixty (60) days after the installation.

XV. Facilities for Testing:

Each utility shall provide for and have available, suitable and adequate facilities for testing its watt-hour meters, in each case to be satisfactory to and approved by the Commission. These facilities shall, in general, include a test bench free from unnecessary encumbrances, one or more portable rotating standard watt-hour meters, a suitable check meter or meters mounted on the test bench, and such other necessary equipment as the Commission may require. The check meter shall be the reference standard for the utility, and shall be periodically tested for accuracy, and adjusted when necessary by a representative of the Commission, and at such place as the Commission may direct. Immediately after making final adjustment, the tester shall seal and date tag the meter, and shall furnish utility with a correction curve properly dated and signed.

The portable rotating standard shall also be tested and adjusted periodically by a representative of the Commission, and at such place as the Commission may direct. The tester shall furnish the utility with a correction curve properly dated and signed. During the interval between tests by the Commission, the portable standard shall be compared with the check meter at least once each week for commutating types, and at least once every two weeks for induction types, during the time the portable meter is in service, and the calibration thus obtained shall be used in determining the error of the service meters. A complete record of these check-tests shall be kept for at least two years, as specified in Rule X. This record shall show the condition and accuracy of the rotating standard "as found"

and "as left;" all in such form and such detail as to permit of convenient checking of the method and results.

All correction curves furnished by the Commission shall be kept with the meter until superseded. After January 1, 1915, tests made with uncertified facilities will not be deemed authoritative.

XVI. Frequency of Periodic Tests:

Each utility shall make periodic tests of all its watt-hour meters in service, in accordance with the following schedule:

- (a) Two and three wire commutating type and mercury type

(Insert - page 7, Circular 10-A)

By action of the Commission taken on March 10, 1930, paragraph (c) of Rule XVI, Part II of Rules and Regulations pertaining to Electric Utilities, adopted April 9, 1914, was amended, to be effective April 1, 1930, to read as follows:

"(c) Two and three wire single phase induction type meters, up to and including twenty-five (25) amperes rated capacity of meter element, and manufactured prior to January 1st, 1911, shall be tested at least once every thirty (30) months. Meters of the same type and rating manufactured since January 1st, 1911, shall be tested at least once every sixty (60) months."

"(d) Meters of over fifty (50) k. w. rated capacity, shall be tested at least once every eighteen (18) months.

(f) Self contained polyphase meters of over fifty (50) k. w. rated capacity, shall be tested at least once every twelve (12) months.

(g) Polyphase meters connected through current transformers, or current and potential transformers, to circuits up to and including fifty (50) k. w. rated capacity, shall be tested at least once every twenty-four (24) months.

(h) Polyphase meters connected through current transformers, or current and potential transformers, to circuits of over fifty (50) k. w. rated capacity, shall be tested at least once every eighteen (18) months.

Whenever the number of meters of any type which register in error beyond the limits specified in Rule XI, is deemed by the Commission to be excessive, then this type shall be tested with such additional frequency as the Commission may direct.

XIII. Meter Record.

Each utility shall maintain a record of all its service watt-hour meters, which record shall show the name of the manufacturer, the type, the rating, the date of purchase when purchased after July 1st, 1914, the date and location of all installations in service and the removals therefrom, the date of all tests and the reasons therefor, and the error "as found" and "as left." This record shall be kept as specified in Rule X, and shall be complete and up to date within three years subsequent to July 1st, 1914.

XIV. Test Previous to Installation:

Each watt-hour meter shall have been tested for accuracy previous to its installation thereafter. It shall be tested in operation, mechanical and electrical, within sixty (60) days after

XV. Facilities for Testing:

Each utility shall provide adequate facilities for testing which shall be satisfactory to an independent tester. The facilities shall, in general, include, but not be limited to, the following: a suitable check meter, a suitable check meter shall be provided for testing such other necessary check meter shall be provided and shall be periodically tested by a representative of the Commission, and at such place as the Commission may direct. Immediately after making final adjustment, the tester shall seal and date tag the meter, and shall furnish utility with a correction curve properly dated and signed.

The portable rotating standard shall also be tested and adjusted periodically by a representative of the Commission, and at such place as the Commission may direct. The tester shall furnish the utility with a correction curve properly dated and signed. During the interval between tests by the Commission, the portable standard shall be compared with the check meter at least once each week for commutating types, and at least once every two weeks for induction types, during the time the portable meter is in service, and the calibration thus obtained shall be used in determining the error of the service meters. A complete record of these check-tests shall be kept for at least two years, as specified in Rule X. This record shall show the condition and accuracy of the rotating standard "as found"

and "as left;" all in such form and such detail as to permit of convenient checking of the method and results.

All correction curves furnished by the Commission shall be kept with the meter until superseded. After January 1, 1915, tests made with uncertified facilities will not be deemed authoritative.

XVI. Frequency of Periodic Tests:

Each utility shall make periodic tests of all its watt-hour meters in service, in accordance with the following schedule:

- (a) Two and three wire commutating type and mercury type meters, up to and including fifty (50) amperes rated capacity of meter element, shall be tested at least once every eighteen (18) months.
- (b) Two and three wire commutating type and mercury type meters of over fifty (50) amperes rated capacity of meter element, shall be tested at least once every twelve (12) months.
- (c) Two and three wire single phase induction type meters, up to and including twenty-five (25) amperes rated capacity of meter element, and manufactured prior to January 1st, 1907, shall be tested at least once every thirty (30) months. Meters of the same type and rating manufactured since January 1st, 1907, shall be tested at least once every thirty-six (36) months.
- (d) Two and three wire single phase induction type meters of over twenty-five (25) amperes rated capacity of meter element, shall be tested at least once every twenty-four (24) months.
- (e) Self contained polyphase meters up to and including fifty (50) k. w. rated capacity, shall be tested at least once every eighteen (18) months.
- (f) Self contained polyphase meters of over fifty (50) k. w. rated capacity, shall be tested at least once every twelve (12) months.
- (g) Polyphase meters connected through current transformers, or current and potential transformers, to circuits up to and including fifty (50) k. w. rated capacity, shall be tested at least once every twenty-four (24) months.
- (h) Polyphase meters connected through current transformers, or current and potential transformers, to circuits of over fifty (50) k. w. rated capacity, shall be tested at least once every eighteen (18) months.

Whenever the number of meters of any type which register in error beyond the limits specified in Rule XI, is deemed by the Commission to be excessive, then this type shall be tested with such additional frequency as the Commission may direct.

XVII. Meters in Service Without Test Records:

All watt-hour meters in service on and after July 1, 1914, for which there is no record of test within the time equal to the period of test for that class and rating of meter as specified in Rule XVI, shall be tested as soon thereafter as circumstances will permit. In no case shall the time subsequent to July 1, 1914, exceed the length of time of the period of test for meters of that class and rating as specified in Rule XVI.

XVIII. Request Tests:

Each utility shall upon the written request of a consumer, and if he so desires, in his presence or that of his authorized representative, make a test of the accuracy of his meter. When a consumer desires, either personally or by a representative, to witness the testing of a meter, he may require the seal of the meter to be broken only in his presence or that of his representative. If the meter so tested shall be found to be accurate within the limits specified in Rule XI, a fee determined from the schedule indicated below, shall be paid to the utility by the consumer requiring such test; but if not so found, then the cost thereof shall be borne by the utility furnishing the service. When making such request, the consumer shall agree to the basis of payment herein specified. A report of such test shall be made to the consumer, and a complete record of such test shall be kept on file as specified in Rule X.

Schedule of Fees For Testing Watt-Hour Meters.

- (a) For direct current and single phase meters operating on 600 volts or less, up to and including twenty-five (25) amperes rated capacity of the meter element, \$1.50
 - (b) For each additional fifty (50) amperes or fraction thereof, \$.50
 - (c) For single phase meters above 600 volts, and for polyphase meters with or without instrument transformers, up to and including twenty-five (25) k. w. rated capacity of the circuit, \$2.50
 - (d) For each additional twenty-five (25) k. w. rated capacity, or fraction thereof, \$2.50
- Rates for meters not included in the above classification, or so located that the cost is out of proportion to the fee specified, will be furnished by the Commission upon receipt of complete specifications.

XIX. Power Factor Adjustment:

All alternating current watt-hour meters which are provided with a power factor compensation, should be tested and adjusted for correct registration within two (2%) per cent. plus or minus, at one hundred (100%) per cent. power factor, and within four (4%) per cent. at zero or fifty (50%) per cent. power factor (lagging) before installation. All alternating current watt-hour meters in service which have not been so tested and adjusted before installation, and which are connected to circuits supplying other than non-inductive power factor, and at zero or fifty (50%) per cent. lagging power load, shall be tested for accuracy at one hundred (100%) per cent. factor. In all cases where it is not practicable to determine the error of the meter at these power factors, the utility shall have the option of installing an approved check meter, and determining the error as provided in the last paragraph of Rule XII.

XX. Place of Making Tests:

All tests provided for in Rules XIV, XVI and XVIII, and except those made previous to installation as provided for in Rule XIV, shall be made in the place of permanent location on the consumer's premises, with approved equipment and under local conditions.

XXI. Watt-Hour Meter Tests Without Accessories:

In all cases where a service watt-hour meter is connected to the line through shunts, multipliers, or instrument transformers, the test may be made on the meter as a self contained unit, and the ratio of the accessories used to determine the error of the meter, provided that the certificates of the accessories bear a date within five years, and are satisfactory to the Commission.

XXII. Adjustment After Test:

All service watt-hour meters shall be so adjusted after test that the error of the meter as defined in Rule XII shall not exceed two (2%) per cent. Neither shall the error at light load exceed four (4%) per cent., nor the error at heavy load exceed two (2%) per cent.

XXIII. Change of Frequency:

If a utility shall change its standard of frequency, it shall give reasonable notice to all its consumers, and shall make tests and shall readjust all watt-hour meters as soon thereafter as practicable, and shall refund to the consumer all the excess charges which have been collected from him by reason of the change of frequency.

XXIV. Refund for Overcharge:

If a meter be found to be fast by more than four (4%) per cent. as defined in Rule XII at any test, an allowance or refund shall be

made to the consumer by the utility, equal to all the excess charged the consumer, figured back from the date of test through the entire period of the current bill, unless it can be shown that the error is due to an accident or other cause, the exact time of which is known, in which case it shall be figured back to such time.